using the iterative backward processing is indicated by a dashed line. This is because both methods give very good radio link performance and the delay is dominated by sharing limited number of traffic slots, which is independent of the WER performance. In this case, better traffic resource management, such as improved admission control, could achieve capacity improvement. If higher Doppler frequency, e.g., 400 Hz, were encountered, the improved link performance introduced by the iterative backward-processing method, as shown in Fig. 8, would also result in system capacity enhancement.--

IN THE CLAIMS:

Please amend the following claims:

Please cancel claims 7, 9 and 10-12 without prejudice or disclaimer.

1.   (Amended)   A method for estimating channel characteristics in a multicarrier transmission system comprising:

means for receiving a multicarrier signal;

means for applying Fast Fourier transformations of said received multicarrier signal;

means for estimating channel characteristics of a multicarrier channel over which said multicarrier signal was transmitted using iterative processing;

means for decoding said transformed multicarrier, wherein said means for decoding said transformed multicarrier signal further comprises means for demodulating said multicarrier received signal;

means for combining said demodulated multicarrier signal using a maximum ratio combiner; and

means for Viterbi decoding said combined signal.

2. (Amended) The method according to claim 1, wherein said iterative forward processing further comprises:

means for iteratively determining if a block in a frame in the received multicarrier signal is a training block;

means for iteratively decoding said block of said received multicarrier signal tentatively, if said block of said received multicarrier signal is said training block;

means for iteratively calculating a tentative reference signal based on said training block, if said block of said received multicarrier signal is said training block;

means for iteratively generating a tentative estimation of channel characteristics using said tentative reference signal if said block of said received multicarrier signal is said training not;

means for iteratively decoding said block of said received multicarrier signal, if said block of said received multicarrier signal is not said training block;

means for iteratively calculating a reference signal based on said received block, if said block of said received multicarrier signal is not said training block;

means for iteratively generating an estimation of channel characteristics using said reference signal, if said block of said received multicarrier signal is not said training block;

means for iteratively incrementing the block number;

means for iteratively determining if the end of said frame has been reached; and

means for iteratively accepting a next block of received multicarrier signal if said end of said frame has not been reached.

8. (Amended) The method according to claim 1, further comprising means for deinterleaving said combined signal if said combined signal was interleaved for transmission.

11. (Amended) The method according to claim 1, wherein said means for demodulating is performed concurrently for all signals of said received multicarrier signal.

15. (Amended) The method according to claim 1, wherein Fast Fourier transformations are applied to each carrier of said received multicarrier signal.

16. (Amended) A method for estimating channel characteristics in a multicarrier transmission system comprising:

means for iteratively receiving a multicarrier signal;

means for iteratively applying Fast Fourier transformations to carriers of said multicarrier signal;

means for iteratively estimating channel characteristics of a multicarrier channel over which said received multicarrier signal was transmitted using iterative backward processing, wherein said means for iterative backward processing further comprises:

means for iteratively determining if a block in a frame in the received multicarrier signal is correct;

means for iteratively decoding said block of said received signal tentatively, if said block of said received multicarrier signal is correct;

means for iteratively calculating a tentative reference signal based on said training block, if said block of said received multicarrier signal is correct;

means for iteratively generating a tentative estimation of channel characteristics using said tentative reference signal, if said block of said received multicarrier signal is correct;

means for iteratively decoding said block of said received multicarrier signal, if said block of said received multicarrier signal is not correct;

means for iteratively calculating a reference signal based on said received block, if said block of said received multicarrier signal is not correct;

means for iteratively generating an estimation of channel characteristics using said reference signal, if said block of said received multicarrier signal is not correct;

means for iteratively decoding said transformed received multicarrier signal;

means for iteratively decrementing the block number;

means for iteratively determining if a beginning of said frame has been reached; and

means for iteratively accepting a next block of received signal if said beginning of said frame has not been reached.

21.   (Amended) The method according to claim 16, wherein said means for decoding further comprises:

means for iteratively demodulating said multicarrier received sign

means for iteratively combining said demodulated received multicarrier signal using a maximum ratio combiner; and

means for iteratively Viterbi decoding said combined signal.

23. (Amended) The method according to claim 21, wherein said means for demodulating is performed concurrently for all signals of said received multicarrier signal.

24. (Amended) The method according to claim 21, wherein said means for demodulating is performed concurrently for all signals of said received multicarrier signal.

27. (Amended) A method for estimating channel characteristics in a multicarrier transmission system comprising:

means for receiving a multicarrier signal;

means for applying Fast Fourier transformations to carriers of said received multicarrier signal;

means for estimating channel characteristics of a multicarrier channel over which said received multicarrier signal was transmitted concurrently using iterative processing and iterative backward processing; and

means for decoding said transformed received multicarrier signal.

28. (Amended) The method according to claim 27, wherein said means for iterative processing further comprises:

means for iteratively determining if a block in a frame in the received signal is a training block;

means for iteratively decoding said block of said received multicarrier signal tentatively, if said block of said received multicarrier signal is said training block;

means for iteratively calculating a tentative reference signal based on said training block, if said block of said received multicarrier signal is said training block;

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means for iteratively generating a tentative estimation of channel characteristics using said tentative reference signal, if said block of said received multicarrier signal is said training block;

means for iteratively decoding said block of said received multicarrier signal, if said block of said received multicarrier signal is not said training block;

means for iteratively calculating a reference signal based on said received block, if said block of said received multicarrier signal is not said training block;

means for iteratively generating an estimation of channel characteristics using said reference signal, if said block of said received multicarrier signal is not said training block;

means for iteratively incrementing the block number;

means for iteratively determining if the end of said frame has been reached; and

means for iteratively accepting a next block of received signal if said end of said frame has not been reached.

29.   (Amended)   The method according to claim 27, wherein said means for iterative backward processing comprises:

means for iteratively determining if a block in a frame in the received multicarrier signal is correct;

means for iteratively decoding said block of said received signal tentatively, if said block of said received multicarrier signal is correct;

means for iteratively calculating a tentative reference signal based on said block, if said block of said received multicarrier signal is correct;

means for iteratively generating a tentative estimation of channel characteristics using said tentative reference signal, if said block of said received multicarrier signal is correct;

means for iteratively decoding said block of said received multicarrier signal, if said block of said received multicarrier signal is not correct;

means for iteratively calculating a reference signal based on said received block, if said block of said received multicarrier signal is not correct;

means for iteratively generating an estimation of channel characteristics using said reference signal, if said block of said received multicarrier signal is not correct;

means for iteratively decrementing the block number;

means for iteratively determining if the beginning of said frame has been reached; and

means for iteratively accepting a next block of received signal if said beginning of said frame has not been reached.

33. (Amended) The method according to claim 1, wherein said means for demodulating is performed using QPSK techniques.

36. (Amended) The method according to claim 27, wherein Fast Fouriertransformations are applied to each carrier of said received multicarrier signal.

38. (Amended) The method according to claim 37, wherein a deinterleaver is interposed between said maximum ratio combiner and said Viterbi decoder, if an interleaver was used in transmitting said received multicarrier signal.